

This article was downloaded by: [Otterbein University]

On: 22 April 2013, At: 23:35

Publisher: Taylor & Francis

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



## Annals of Science

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/tasc20>

### Sahl and the Tājika Yogas: Indian transformations of Arabic astrology

Martin Gansten<sup>a</sup> & Ola Wikander<sup>a</sup>

<sup>a</sup> Lund University, Lund, Sweden

Version of record first published: 24 Mar 2011.

To cite this article: Martin Gansten & Ola Wikander (2011): Sahl and the Tājika Yogas: Indian transformations of Arabic astrology, *Annals of Science*, 68:4, 531-546

To link to this article: <http://dx.doi.org/10.1080/00033790.2010.533349>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.tandfonline.com/page/terms-and-conditions>

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae, and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand, or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

## Sahl and the Tājika Yogas: Indian Transformations of Arabic Astrology

MARTIN GANSTEN and OLA WIKANDER

Lund University, Lund, Sweden. Email: marten.gansten@pbhome.se

### Summary

This paper offers a positive identification of Sahl ibn Bishr's *Kitāb al-'ahkām 'alā 'n-niṣba al-falakiyya* as the Arabic source text for what is perhaps the most characteristic feature of the medieval Perso-Indian style of astrology known as *tājika*: the sixteen *yogas* or types of planetary configurations. The dependence of two late sixteenth-century *tājika* works in Sanskrit – Nīlakaṇṭha's *Tājikanīlakaṇṭhī* and Gaṇeśa's *Tājikabhūṣaṇa* – on Sahl, presumably through one or more intermediary texts, is demonstrated by a comparison of the terminology and examples employed; and the Indian reception of Arabic astrology is discussed, including reinterpretations of technical terms occasioned partly by corrupt transmission.

### Contents

1. Introduction.....	531
2. The sixteen <i>yogas</i> .....	532
3. Relations to the angles .....	535
4. Approaching and departing.....	535
5. The third party .....	536
6. Relations of dignity .....	538
7. Committing strength, disposition and nature.....	539
8. Strength and weakness .....	540
9. Defects of the moon .....	542
10. Other considerations.....	543
11. Concluding remarks .....	544

### 1. Introduction

Like its European counterpart up to the time of the scientific revolution, Indian astral science or *jyotiḥśāstra* comprised both astronomy and astrology, often viewed as its theoretical and practical aspects, respectively. Although indigenous traditions of astral divination had been present in India at least since the beginning of the first millennium BCE, horoscopic astrology – most probably conceived in Hellenistic Egypt – entered the subcontinent from the Greek-speaking world in late classical times. The earliest preserved Sanskrit work on the subject is Sphujidhvaja's *Yavanajātaka* ('Greek genethliology'), written in the year 269/270 CE but based on an earlier text, now lost, attributed to one Yavaneśvara ('Ruler of the Greeks') and dated to 149/150 CE. Over the following centuries, a large corpus of Sanskrit astrological literature was created, abounding with Greek technical terms for which no indigenous equivalents were ever coined, and which are used by Indian astrologers to the present day. Despite

this living evidence of its ancestry, the new knowledge was so well adapted to the Indian cultural framework that its foreign origins were soon forgotten.

At some time between the ninth and thirteenth centuries, however, a major transition took place in the field as a new school of *jyotiḥśāstra* developed in India alongside the classical tradition, causing considerable debate over questions of antecedents and authority. This school, known as *tājika* (from Middle Persian *tāzīg* meaning ‘Arab’), represented a Sanskritization of materials originating in the Perso-Arabic cultural area. Despite the criticism from orthodox brahmans, who argued that its non-Hindu sources rendered *tājika* religiously unacceptable and epistemologically doubtful, the school survived and is still extant today, although it has been the subject of very little research. Towards the end of a brief outline of the history and distinctive features of *tājika* astrology, David Pingree states:

Much remains to be done with regard to identifying the specific sources used by the Sanskrit *tājikaśāstrakāras* [authors of *tājika* textbooks], whether Persian or Arabic, and with regard to the specific details of the Indian understanding of what they received and of how it differed from their Arabic or Persian sources either because of its being viewed as simply an addition to traditional *jātaka* [Indian genethliology], or because of misunderstandings introduced by the translators or their early interpreters.<sup>1</sup>

It is our purpose in this article to offer one such identification of a source text for some of the most fundamental concepts of *tājika* astrology, and also to shed some light on the Indian reception and reinterpretation of these concepts.

## 2. The sixteen *yogas*

*Tājika* differs from standard Indian astrology primarily by its scheme of planetary aspects (*drṣṭi*), derived from classical Greek sources: the conjunction (exact when two planets occupy the same degree and minute of ecliptical longitude), sextile (exact at a 60° angle), square (90°), trine (120°) and opposition (180°). Sextiles and trines are considered friendly aspects, the others hostile. Great importance is attached to the consideration of whether an aspect is in the process of perfecting or dissolving. Variations on this theme make up the sixteen *yogas* or configurations which form the nucleus of the *tājika* system and the basis of its astrological predictions. These *tājika-yogas* are enumerated in various textbooks, the most well-known of which is the *Tājikanīlakaṇṭhī* (TNK) composed by Nīlakaṇṭha in 1587.<sup>2</sup> Pingree, who calls the TNK ‘wildly popular’, employs it as his source in discussing the *yogas*, and we shall do the same.<sup>3</sup> We shall also refer occasionally to the *Tājikabhūṣaṇa* (TBh) of Gaṇeśa Daivajña, son of Ḍhuṇḍhirāja, a roughly contemporary work composed in a

<sup>1</sup> David Pingree, *From Astral Omens to Astrology: from Babylon to Bīkāner*, Serie Orientale Roma LXXVIII (Roma, 1997), 90.

<sup>2</sup> The relevant material is found in its *Samjñātāntra*, *Ṣoḍaśayogādhyāya*. Although the division of the text into *adhyāyas* is not entirely consistent across editions, we shall refer to the *Ṣoḍaśayogādhyāya* as *adhyāya* 2. In the absence of a critical edition of the *Tājikanīlakaṇṭhī*, we have used the edition of the Sanskrit text with Viśvanātha’s commentary, Hindi translation and commentary by Paṇḍita Śrī Kedāradatta Joṣī (Dillī [Delhi], 2008; first edition: Vārāṇasi, 1971).

<sup>3</sup> Pingree (note 1), pp. 84, 88–89.

different part of the subcontinent.<sup>4</sup> Although considerably more concise and differing in wording and metre, the treatment of the subject in the TBh closely mirrors that in the TNK, suggesting the dependence of both on a common, earlier source.<sup>5</sup>

The names of the sixteen *yogas* are all derived from the Arabic, and Pingree looks to the *Kitāb al-mudkhal aṣ-ṣaghīr* or *The Shorter Introduction*<sup>6</sup> by Abū Maʿshar al-Balkhī (c. 787–886) for explanations of the original astrological concepts underlying them. As we shall demonstrate, however, the source of the sixteen *tājika-yogas* is not Abū Maʿshar, whose list comprises twenty-five configurations, but rather his contemporary Sahl ibn Bishr (c. 785–845?). More specifically, the *tājika* list is derived from Sahl's *Kitāb al-ʾaḥkām ʾalā ʾn-niṣba al-falakiyya*, known as the *Introductorium*, which enjoyed great popularity throughout the Middle Ages and was often quoted by later authors.<sup>7</sup> Part of Sahl's work received the particular attention of Viktor Stegemann, who nearly seven decades ago published an annotated edition of the Arabic text along with its medieval Latin and Byzantine Greek translations, attempting to trace its doctrines to the writings of Dorotheus of Sidon (fl. c. 75 CE).

A comparison of the number, names and order of the *tājika-yogas* with those of Sahl's configurations makes clear the dependence of the former on the latter. We begin with the first twelve items in both lists:

Sahl <sup>8</sup>	Nīlakaṇṭha <sup>9</sup>
1. ʾiqbāl	1. ikkavāla
2. ʾidbār	2. indwāra
3. ʾittiṣāl	3. itthaśāla
4. ʾinṣirāf	4. īsarāpha

<sup>4</sup> The TNK was composed in Kāśī (Vārānaśī), the TBh considerably further south, in Pārthapura, Mahārāṣṭra, probably at the end of the 16<sup>th</sup> century; see David Pingree, *Jyotiḥśāstra: astral and mathematical literature*, A history of Indian literature, vol. 6, fasc. 4 (Wiesbaden, 1981), pp. 98–99. The sixteen *yogas* are discussed at the beginning of its *Dvādaśabhāvaphalādhyāya*, to which we shall refer as *adhyāya* 4. The present Gaṇeśa Daivajña should not be confused with his namesake of Nandigrāma, born in 1507 as the son of Keśava Daivajña. In the absence of a critical edition of the *Tājikabhūṣaṇa*, we have used the edition of the Sanskrit text with Hindi paraphrase by Paṇḍita Sītārāma Śāstrī (Bambai/Mumbai, 2005).

<sup>5</sup> The possibility of either of the two Sanskrit texts being dependent on the other is remote, given their proximity in time as well as the fact that each at times agrees more closely with the Arabic source text than the other; see instances below.

<sup>6</sup> Also known as the *Mukhtaṣar al-mudkhal*, published with an English translation as *The Abbreviation of the Introduction to Astrology*, ed. Charles Burnett et al. (Leiden, 1994). The relevant material is found in Chapter 3.

<sup>7</sup> The close correspondence between the sixteen *tājika-yogas* and the configurations enumerated by 'Zahel bem biç Ismaelita' was noted by Albrecht Weber in 'Zur Geschichte der indischen Astrologie', *Indische Studien: Beiträge für die Kunde des indischen Althertums*, 2 (1853), pp. 236–287, 266–267. Weber did not, however, appreciate the extent of the dependence of *tājika* authors on Sahl's text, and also referred to other Arabic-language authors in his explication of the *yogas*. Neither does Pingree, who refers to Weber's work, appear to have realized the importance of the latter's observation; see Pingree (note 4), p. 99.

<sup>8</sup> The forms are those given in Stegemann's edition of the Arabic text, with standard vocalizations; see Viktor Stegemann, *Dorotheos von Sidon und das sogenannte Introductorium des Sahl ibn Bishr*, Monographien des Archiv Orientalní, Band XI (Prag/Praha, 1942), p. 35 *et passim*. Alternative forms of some terms, agreeing more closely with the Sanskritized versions, are listed in Pingree (note 1), pp. 88–89. See our concluding remarks below for a discussion of these differences.

<sup>9</sup> TNK 2.15–16. Slight variations in these names occur throughout the text, mostly *metri causa*; thus, *maṇaū* for *maṇāū*, etc. Similar minor variations appear in the TBh.

- |   |  |
|---|--|
| 5. <i>naql</i>  | 5. <i>nakta</i> (for <i>nakla</i> ?) <sup>10</sup> |
| 6. <i>jam</i> <sup>c</sup> <sup>11</sup>                  | 6. <i>yamayā</i>                                   |
| 7. <i>man</i> <sup>c</sup> <sup>12</sup>                  | 7. <i>maṇāū</i>                                    |
| 8. <i>qabūl</i>   | 8. <i>kabbūla</i>                                  |
| 9. <i>ghayr al-qabūl</i> <sup>13</sup>                    | 9. <i>gairikabūla</i>                              |
| 10. <i>khalā</i> <sup>c</sup> <i>s-sayr</i>               | 10. <i>khallāsara</i>                              |
| 11. <i>radd</i>   | 11. <i>radda</i>                                   |
| 12. <i>daf</i> <sup>c</sup> <i>al-quwwa</i> <sup>14</sup> | 12. <i>duphālikuttha</i> <sup>15</sup>             |

The conformity of the two lists is too obvious to require comment; but the final four entries are still more revealing. Individual items in Sahl's list are separated by the word *wa* ('and'); but this list also contains, as a single phrase, *daf*<sup>c</sup> *at-tadbīr wa-ṭ-ṭabī'a*, 'committing disposition and nature'.<sup>16</sup> The translator, understanding the *wa* in this phrase to indicate a new item on the list, has divided Sahl's thirteenth configuration into two: *daf*<sup>c</sup> *at-tadbīr* and *aṭ-ṭabī'a*. The fourteenth *yoga* is therefore the result of a misreading of the source text: *tambīra* (in Pingree's version, *taṃvīr*) is not, as Pingree surmises, based on Arabic *tadbīr* – an entry which, significantly, he fails to locate in Abū Ma'shar – but on *ṭabī'a*.<sup>17</sup>

- | Sahl   | Nīlakaṇṭha                            |
|--|---------------------------------------|
| 13. <i>daf</i> <sup>c</sup> <i>at-tadbīr</i> ...<br>... <i>wa-ṭ-ṭabī'a</i> | 13. <i>duṭthodibīra</i> <sup>18</sup> |
| 14. <i>quwwa</i>   | 14. <i>tambīra</i>                    |
| 15. <i>duf</i>   | 15. <i>kuttha</i>                     |
| 16. <i>aḥwāl al-qamar</i>  | 16. <i>durapha</i>                    |
|  | –                                     |

The remaining items are, of course, displaced, so that Nīlakaṇṭha's list of sixteen ends with *durapha* or 'weakness' of the planets.<sup>19</sup> The final item on Sahl's list, however, deals with the 'defects of the moon', which may easily be perceived as a specific subset of 'weakness' and included under that heading, and this is how it appears

<sup>10</sup> In North Indian scripts such as *devanāgarī*, the conjunct characters *kla* and *hta* can be quite similar in appearance. *Nakta* ('night') being a proper Sanskrit noun, a scribal 'correction' from *nakla* to *nakta* would certainly be quite plausible; cf. the pseudo-Sanskrit *induvāra* ('moon-time, Monday') for 'idbār and *durapha* for *duf*, discussed below.

<sup>11</sup> Pingree has *jāmī'a*.

<sup>12</sup> Pingree has *man'a*.

<sup>13</sup> This configuration is missing from the list in the Arabic manuscript consulted by Stegemann, who nevertheless includes it on the basis of the Latin translation, where it is called *gairalcobol*. Moreover, the configuration is discussed at the pertinent place later in the Arabic text, that is, between the discussions of *qabūl* and *khalā*<sup>c</sup> *s-sayr*; see Stegemann (note 8), pp. 35, 47.

<sup>14</sup> Pingree has *dufā*<sup>c</sup> for *daf*<sup>c</sup>, here and in item 13.

<sup>15</sup> The TBh 4.5 has *duṣphalinikuttha*, *duṣphālikuttha*, possibly in an attempt at pseudo-etymologization. *Duṣphalinī* (fem.) means 'bearing evil fruit', a meaning which does not agree with the supposed effect of the *yoga*.

<sup>16</sup> In Abū Ma'shar (note 6), pp. 44–46, these appear as two separate configurations: *daf*<sup>c</sup> *at-tadbīr* and *daf*<sup>c</sup> *aṭ-ṭabī'a*.

<sup>17</sup> The somewhat unexpected transformation of 'ayn into *r* is also found, as seen below, in *durapha* (from *duf*). As discussed below, we believe that, in both cases, this development may be due to etymologizing efforts.

<sup>18</sup> The TBh has *duṭṭhakutthīra*.

<sup>19</sup> Weber (note 7), p. 273, notes the same discrepancy between the *tājika* sources and 'Hazel' (seemingly an error for Zahel/Sahl), wrongly concluding that the latter's final configuration ('de vitiis lunae et eius malo esse') was added to the original list to make up for the omitted fourteenth item. For Weber's mistaken etymology of *taṃvīra*/*tambīra*, see our concluding remarks below.

in the TNK (2.73). Very probably the pseudo-etymologized form *dur-apha* (*dur-* meaning ‘evil’ or ‘slight’) would also, to the ear of an Indian astrologer, suggest a connection with the moon, being reminiscent of *sunaphā* and *anaphā* (from συναφή, ἀναφή), two lunar *yogas* in pre-Islamic Indian astrology.

We now move on to considering the ideas underlying the sixteen configurations, both as expressed by Sahl and as understood by Nīlakaṇṭha. Although these have been treated briefly by Stegemann and Pingree, both scholars leave points which need to be addressed.

### 3. Relations to the angles

Sahl defines *iqbāl* as a planet occupying one of the angles (houses 1, 4, 7 and 10: the ascendant, lower midheaven, descendant and upper midheaven) or their succedent houses (2, 5, 8 and 11); *idbār*, as a planet occupying a house cadent from the angles (3, 6, 9 or 12). The TNK (2.17) differs only in assigning *all* planets to angles or succedents for *ikkavāla*, and to cadents for *induvāra*.

### 4. Approaching and departing

The most fundamental relation between two planets lies in their approaching or departing from one another, either by conjunction or by aspect. Sahl defines application or *ittiṣāl* as a swifter-moving planet closing in on a slower-moving, perfecting when they are joined ‘minute to minute [of arc]’. Separation or *inṣirāf* begins when the swifter planet has moved beyond the slower by one degree, and is complete when one leaves the other’s ‘body’ or ‘orb’ of light: 15° to either side for the sun, 12° for the moon, 9° for Saturn and Jupiter, 8° for Mars, and 7° for Venus and Mercury. Application may take place across the border of two zodiacal signs.

The TNK agrees closely with this description – including the orbs (*dīptāṃśa*, ‘bright degrees’), which, however, are discussed a little earlier in the text – and states that *itthaśāla* is perfected when within ‘a second or half a minute [of arc]’ (2.18). A swifter planet approaching a slower but not yet within orb is termed a future (*bhaviṣyat*) *itthaśāla*. The TNK further adds (2.21) that the *itthaśāla* is considered strong when the planets involved are aspected by their rulers and benefic planets, particularly with friendly aspects (sextiles and trines). Separation or *īsarāpha* is said (2.24) to be destructive only when arising from a malefic planet, ‘according to the school of Hillāja’ (*hillājamatena*). It is not clear to which text or author this refers, but *hillāja* is the standard Sanskritization of Arabic *hīlāj*, the ‘starter’ of the course of life – another *tājika* concept not present in classical Indian astrology.<sup>20</sup>

Alongside the forms *itthaśāla* and *īsarāpha*, the TNK and TBh also employ the synonyms *muthaśila* and *musarīpha*, respectively. The latter forms are derived from the Arabic *mutaṣil* and *muṣarīf*, which are properly active participles rather than verbal nouns, but there is no such distinction of meaning in the Sanskrit usage.<sup>21</sup>

<sup>20</sup> Pingree uses the vocalization *haylāj*; but *hīlāj* is closer to the original Middle Persian word (*hīlāk*, ‘releasing’, a translation of ἀφέντης), and the medieval European transcriptions – like the Sanskrit – all reflect a pronunciation with *ī* rather than *ay*. The common Latinization is *hyleg*, with variants. See Paul Kunitzsch, *Mittelalterliche astronomisch-astrologische Glossare mit arabischen Fachausdrücken* (München, 1977), pp. 49–50.

<sup>21</sup> The Latin translation of Sahl exhibits the same lack of distinction between *alictisal* (that is, *al-ittiṣāl*) and *mutatil* (*mutaṣil*).

### 5. The third party

The next three configurations involve a third planet helping or hindering the two between which a connection is sought – generally the ruler of the ascendant, signifying the person born or asking a question, and the ruler of the house signifying the matter under consideration, such as marriage, children, wealth, honours, and so forth. According to both Sahl and the TNK (2.25), *naql* ('transfer') or *nakta* is when a swifter planet is separating from one slower planet and applying to another, thereby transferring the light (and, says Sahl, the nature) of the former to the latter. The principle is illustrated in both texts by a partial horoscope which, despite some minor discrepancies, corroborates the dependence of Nīlakaṇṭha and Gaṇeśa on Sahl:

Sahl<sup>22</sup>

An example of that is if the ascendant is Virgo and the question is about marriage, and the moon is in the tenth degree of Gemini, and Mercury is in the eighth degree of Leo, and Jupiter is in the thirteenth degree of Pisces. Mercury was the ruler of the ascendant and significator of the question. It is not aspecting Jupiter (which is the ruler of the sign of the marriage), because it is in the eighth sign from it. Rather, I looked to the moon and found it departing from Mercury, and it is connected with Jupiter and transferring the light between them. Success is indicated in the matter through the activity of envoys and those who go back and forth.

Nīlakaṇṭha<sup>23</sup>

In a question about the acquisition of a wife, Virgo is the ascendant; its ruler Mercury is in Leo with ten degrees; Jupiter is in the seventh house [that is, Pisces] with twelve degrees. There is no aspect between them; but if the Moon in Sagittarius [or] Taurus with eight or eleven degrees, aspected by both [Mercury and Jupiter] and fast[er than both], taking light from Mercury, would pass it on to Jupiter, [the querist] would obtain a wife through [the help of] another.

The topic of the interrogation, the rising sign and the longitude of Jupiter are identical in the two examples, while there is a slight difference in the longitude (though not in the sign position) of Mercury. Possibly Nīlakaṇṭha, or some intermediary source through which Sahl's example was transmitted to him, confused the degrees of Mercury and the moon (the latter of which he places in a different sign of the zodiac), so that with only 8° the moon is actually approaching both Mercury and Jupiter, rather than occupying an intermediate position as would be required by the definition of *nakta*. Nīlakaṇṭha may then have added his second alternative (11°) as an afterthought to make the illustration conform to this definition.

Sahl defines the next configuration, *jam* ('collection'), as two planets both applying to a third planet, slower than either, which then collects the light of both. The definition of *yamayā* in the TNK (2.28) is slightly different: here the third planet, slower than both the others and occupying a middle position (*antaḥsthita*), takes the

<sup>22</sup> Translation based, with slight alterations, on that of Yasin Linder, published in Benjamin Dykes, *Works of Sahl & Māshā'allāh* (Golden Valley, Minnesota, 2008), p. 18. Linder's translation follows the Arabic text published by Stegemann (note 8) on the basis of MS V 799 of the Universitätsbibliothek Leipzig.

<sup>23</sup> TNK 2.26–27. The TBH (4.12) gives the same illustration but does not include degrees, nor the zodiacal sign of the moon.

light from the swifter planet and conveys it to the slower planet, although the aspect between them is necessarily a separating one. The illustration used (2.29–30) – which does not derive from Sahl – has Jupiter as the intermediary at 10° Cancer conveying light from the moon at 6° Taurus to Venus at 16° Aries.<sup>24</sup>

Three varieties of *manʿ* ('prohibition') are described by Sahl, illustrated by four partial horoscopes.<sup>25</sup> These have been conflated in the TNK, by misunderstanding or corrupt transmission, into one definition with two illustrations. The basic idea of Sahl's definition is the prohibition of contact caused by a third, intervening planet. Such prohibition may take the form of one aspect prohibiting another aspect; one conjunction prohibiting another conjunction; or a conjunction prohibiting an aspect. Sahl does not actually say that the disruptive planet or aspect need be naturally hostile, but his illustrations do make use of such planets and aspects. In the first two varieties, degrees of longitude are essential: the third planet must be placed between the first two in order to prevent their contact. In the last form of *manʿ*, however, the planet in conjunction always overrides the aspect, irrespective of longitude. As a result, the TNK (2.31–32) defines *maṇāū* as Mars or Saturn forming a conjunction, square or opposition with one planet, with fewer or more degrees, while also in *itthaśāla* with the other planet.<sup>26</sup> The two examples from the TNK (2.32–33) and their originals from Sahl's text are as follows:

Sahl<sup>27</sup>

Of which this is an example: like if the ascendant was Virgo, and the question came to be about marriage. And Mercury, ruler of the ascendant (who is the significator of the one asking) in the tenth degree of the sign of Cancer; and Jupiter, ruler of the seventh house (who is the significator of the betrothed) in the fifteenth degree of the sign of Pisces; and Mars was in the thirteenth degree of Aries. Therefore Mars was cutting off the light of Mercury from Jupiter; and Mars was in the eighth house, that is, of the property of the woman: it signified that the destruction of this matter would arise from the drawing-up of the dowry.

[...]

Nīlakaṇṭha

In a query on the acquisition of a wife, Virgo is the ascendant; [its ruler] Mercury is there with ten degrees; Jupiter is in the seventh house [that is, Pisces] with fifteen degrees; Mars is in the tenth house with eleven degrees. Mercury, having first been deprived of its light by Mars, then meets Jupiter; therefore, there is no gain of a wife, nor if it [Mars?] were placed behind [Mercury?].<sup>28</sup>

[...]

<sup>24</sup> The TBh (4.14) gives the same example without the longitudes, stating merely that Jupiter would be between the moon and Venus (with regard to its position within its own zodiacal sign). Sahl's text contains no illustration of the principle of *jam'*, leaving us to conclude that the present example was added by some subsequent copyist or translator – Persian or Indian – emulated by both Nīlakaṇṭha and Gaṇeśa.

<sup>25</sup> These example horoscopes, although present in the Arabic manuscript used by Stegemann, have been left out of his edition and translation of the text; but they are present, in translation from the Latin, in Dykes (note 22), pp. 20–28.

<sup>26</sup> Pingree (note 1), p. 88, although claiming to give Nīlakaṇṭha's explanations of the *yogas* where they differ from Abū Ma'shar, does not remark on this reinterpretation.

<sup>27</sup> Translation based on Dykes (note 22), pp. 21–22, with slight alterations.

<sup>28</sup> The TBh (4.16–17) gives the same illustration, adding only (and seemingly unnecessarily) that Mars would be joined to the moon.



Of which [this] is an example: like if the Moon was in the tenth degree of Taurus, and Mars in the twentieth degree of the same Taurus; and the Moon would be joined to Venus by aspect before she would be joined to Mars; and Venus was in the fifteenth degree of Cancer. Even though Venus was in fewer degrees, still the judgment would be referred to Mars, because he was with the Moon in one sign.

[If] Venus, ruler of the Libra ascendant in a question on the attainment of kingship, is in Cancer with fifteen degrees, the Moon in Taurus with ten degrees and Mars with sixteen<sup>29</sup> degrees, [the latter], taking away the light of the two [others], also takes away the kingship.<sup>30</sup>

### 6. Relations of dignity

Sahl's next four configurations all include the consideration of the dignity of a planet in a given part of the zodiac. These dignities are, as usual in Perso-Arabic astrology, domicile, exaltation, triplicity, terms and decan – known in *tājika* texts as *pañcavarga* or the 'group of five'.<sup>31</sup> When a swifter planet forms an *'ittiṣāl* with a slower planet which also happens to have dignity of domicile or exaltation (or a combination of two or more lesser dignities) in the place occupied by the swifter planet, the slower planet is said to 'receive' and 'know' the swifter. Such reception, known as *qabūl*, operates even if the *'ittiṣāl* is formed across the border of a zodiacal sign, so that the swifter planet has to leave its current sign in order to perfect the aspect to the planet having dignity therein.

In the reverse situation, the swifter planet approaches the slower from the latter's sign of fall (opposite its exaltation), where the slower planet would be at its weakest. In such a case, known as *ghayr al-qabūl* or non-reception, the slower planet does not know or receive the swifter.

In his several illustrations of these principles, Sahl makes use of the moon as the swifter planet. In the TNK, we find *kabbūla* (or, sometimes, *kambūla*) reinterpreted as an *itthaśāla* between two planets augmented by another *itthaśāla* formed by the moon with either or both planets. This is treated at some length (2.36–54), with sixteen varieties being distinguished on the basis of the dignities of the planets involved – from the 'highest of the high' (*uttamottama*) to the 'lowest of the low' (*adhamādharma*). By analogy, *gairikabūla* is defined (2.55–57) as an *itthaśāla* occurring between two planets while the moon, being neither in dignity nor in debility and forming no aspect in its current zodiacal sign, will do so on entering the following sign. This is clearly a garbled version of Sahl's illustrations, making *gairikabūla* – unlike *ghayr al-qabūl* – a potentially helpful configuration.<sup>32</sup>

The moon's state of being neutral and unconnected to other planets is described in Sanskrit as being *śūnyādhvani*, 'on an empty path', which translates the Arabic *khalā' s-sayr* and, ultimately, κενόδρομός. A Sanskritization of the latter word

<sup>29</sup> The TBh (4.18), like Sahl's text, gives Mars 20 degrees.

<sup>30</sup> The topic of the hypothetical interrogation is present neither in Sahl's text nor in the TBh and may have originated with Nīlakaṇṭha.

<sup>31</sup> But see our comments on the Indian reception of these categories in the discussion of 'strength and weakness' below.

<sup>32</sup> Again, this rather drastic deviation of Nīlakaṇṭha's is not noted by Pingree.

(*kemadruma*) already existed in standard Indian astrology, comprising a related but simpler – perhaps earlier – form of the idea. Sahl's definition of *khālā' s-sayr*, generally known in English as being 'void of course' (from the Latin *vacua cursus*), states only that the moon (or any planet?) should not be joined to any other planet. The TNK (2.61) understands *khallāsara* to refer to a situation where the moon is neither in *itthašāla* 'nor conjunct' another – which may be intended to rule out separating conjunctions, conjunctions by mere zodiacal sign, or both – and says that it 'destroys the effects of *kambūla*'.

The condition of *radd* or 'return' is defined by Sahl as a slower planet being weakened by retrogression or combustion (heliacal setting), and therefore returning the light of a swifter planet, with which it is in *'ittiṣāl*. At this point there is a lacuna in Stegemann's Arabic text, and the Latin versions differ slightly. The fuller version speaks of a swifter planet in an angle being joined to a slower planet in a cadent house; the swifter planet represents the beginning of the matter, and the slower planet returning its light shows that the matter has no end, that is, will come to nothing. The shorter version speaks of both planets being in cadent houses, indicating that the matter 'has neither beginning nor end', a phrase which also occurs after the lacuna in the Arabic text. The TNK (2.62–63) reflects both these versions, stating that *radda* occurs when a planet forming a *muthašila* (that is, *itthašāla*) is combust,<sup>33</sup> in its fall, in a hostile sign, retrograde, or reduced in brightness, and therefore unable to receive the light of the other planet, 'whether at the end or in the beginning'. This somewhat cryptic phrase is then explained: a swifter planet in an angle being joined to a cadent planet means that the matter, having first come to be, is ultimately destroyed; if the swifter planet is cadent and joined to a slower planet in an angle, the matter will first be destroyed but then come to pass.

### 7. Committing strength, disposition and nature

The configurations which Sahl calls *daf' al-quwwa* ('committing strength') and *daf' at-tadbīr wa-ṭ-ṭabī'a* ('committing disposition and nature') have confused medieval Indian scholars as well as modern western ones. The two ideas seem to be complementary: in the first case, the swifter planet is strong in its own dignities – Sahl specifies domicile, exaltation or triplicity – and confers this strength on the slower planet with which it connects. In the second case, the swifter planet is in the slower planet's dignities rather than its own, and therefore entrusts its own disposition (*tadbīr*) – a rather vague term referring to matters for which it is responsible – and nature to the slower, as to a liege lord.<sup>34</sup>

The TNK (2.64) states that a slower planet in its dignities, forming an *itthašāla* with a swifter, undignified planet, perfects the matter at hand if it (the slower planet?)

<sup>33</sup> Pingree (note 1), p. 88, misunderstands the word *asta* ('set'), which he interprets as 'being in the descendent', that is, in the seventh house. In the context of planetary debility, however, *asta* refers not to setting at the horizon, but to heliacal setting or combustion.

<sup>34</sup> Pingree (note 1), p. 89, gives a slightly misleading version of Abū Ma'shar's *daf' at-tadbīr*, which is only half of the configuration discussed by Sahl. Stegemann (note 8), pp. 49–50, 69–70, fails to recognize the distinction Sahl makes between a swift planet occupying *its own* dignities or *another's* dignities, despite quoting (in Latin) Sahl's two illustrations of the moon being in Aries joined to Mars, or in Gemini joined to Mercury. The configurations are, however, well understood by Dykes (note 22), pp. lxvi–lxvii.

is not retrograde or otherwise debilitated. This description matches Sahl's thirteenth configuration but appears in the twelfth place, belonging to *duphālikuttha*.<sup>35</sup> The next *yoga* (2.65), which should be *duṭṭhoṭhadibīra*, is quite distorted, positing that the rulers of the ascendant and the matter in question should be weak, one of them joined by a dignified planet, while two other planets are strong. The result is said to be success by the help of others. Finally, *tambīra*, manufactured by the mistaken division of Sahl's phrase, is defined (2.66) as an *itthaśāla* formed by a strong planet across the border of a zodiacal sign, a possibility previously discussed. See our concluding remarks below for a discussion of this assigned meaning.

### 8. Strength and weakness

Some order is restored at the end of the list. Sahl's exposition of *quwwa*, conditions strengthening a planet, runs to eleven points, most of which recur in the TNK (2.67–70), although not numbered, as definitions of *kuttha*.<sup>36</sup> They are:

1. Occupying an angle or succedent house and aspecting the ascendant (identical in the TNK).
2. Occupying its domicile, exaltation, triplicity, terms or decan. The TNK lists decan in third place, possibly *metri causa*, but more probably because it is a well-established dignity in standard Indian astrology, whereas triplicity (*musallaha*, from Ar. *muthallatha*) and terms (*hadda*, from Ar. *ḥadd*) are not.<sup>37</sup>
3. Being direct in motion.<sup>38</sup> The TNK adds: 'of average motion, not fast', indicating a compromise between the traditional Indian view, in which slow motion is a sign of strength, and the Hellenistic/Perso-Arabic view, where it is a sign of debility.
4. Not being joined to, square or opposite a malefic planet. The TNK adds: '[being] conjunct or aspected by a benefic'.
5. Not being joined to a planet in a cadent house or its sign of fall. This condition is missing from the TNK.
6. Being received. This condition is missing from the TNK.
7. For the masculine planets, rising in the east at dawn (that is, before the sun). Stegemann's Arabic text is incomplete at this point, listing only Saturn and Jupiter as masculine planets and making no mention of the feminine planets.

<sup>35</sup> The TBh (4.27) agrees with the TNK in matching its definition of *dusphālikuttha* to that of *daf' at-tadbīr*.

<sup>36</sup> The definition of *kuttha* is lacking in the edition of the TBh available to us.

<sup>37</sup> A somewhat different version of the terms (*ḥadd*, ὅρις) is known to classical Indian astrology as the *triṃśāṃśa*, but Nīlakaṇṭha apparently does not connect the two. The TNK possibly still employs the word *musallaha* in the original sense of 'triplicity', more commonly referred to as *trirāśi* or *trairāśika*. The TBh (1.21), however, lists the five major dignities (*pañcādhiḥkāra*) as domicile (*sadana*), exaltation (*ucca*), terms (*hadda*), *trairāśika* and *muṣallaha*, thus distinguishing between the latter two categories (here seemingly perceived of as two variant decan systems). According to Weber (note 7), p. 264, Balabhadra, writing in the 17<sup>th</sup> century, connects *hadda* with *triṃśāṃśa*, but identifies *trairāśika* with the decans and *musallaha* with the *navāṃśa* or one-ninth of a zodiacal sign (a concept of purely Indian origin). In support of the latter identification Balabhadra quotes a *Tājikatilaka* and a *Tājikamuktāvali*, citing the views of the supposedly ancient, but unidentified and undated, authorities Khindaka and Romaka. More research is needed to establish when and how these misidentifications came about. (Weber's suggested etymologies for the Sanskritized forms *musallaha* and *hadda*, relating them to the Arabic roots *ṣ-l-ḥ* and *h-d-d*, respectively, are both incorrect.)

<sup>38</sup> The Arabic has 'straight of path' (*mustaqīm as-sayr*), which in Sanskrit has become *mārgagati*, 'travelling the path' ('straight' presumably being implied). The standard Sanskrit term for 'direct' would have been *rju*, separate or used in a compound.

The Latin translation, however, includes Mars with the masculine planets and states that Venus, Mercury and the moon should appear in the west in the evening (that is, after sunset). The TNK gives a garbled version, saying that the moon, Venus *and* Mars should rise heliacally in the evening (which in the case of Mars is an astronomical impossibility), while Saturn and Jupiter should do so at the end of night.

8. Masculine planets are strong by day, feminine by night (identical in the TNK). Here it is Sahl who is confusing two similar but not identical classification systems of Hellenistic astrology, namely, gender and sect (ἀἵρεσις). The sun, Saturn and Jupiter are considered both masculine and diurnal; the moon and Venus are both feminine and nocturnal; but Mars, though masculine, is nocturnal and should be considered strong by night. (Mercury is neutral in both gender and sect.) The TNK compounds the confusion by having previously classified both Saturn and Mercury as feminine planets.
9. Occupying fixed signs. Identical in the TNK, but there placed after the following point.
10. Being 'in the heart of the sun', which Sahl defines as conjunct within one degree. This condition, which again has Hellenistic roots, is considered to reverse the effects of combustion or heliacal setting; but the Indian tradition is unaware of it. It is therefore not surprising that the TNK adds a negation: '*not* in one degree with the sun'.
11. Masculine planets occupying masculine (odd-numbered) signs, feminine planets occupying feminine (even-numbered) signs (identical in the TNK). Furthermore, masculine planets occupying masculine quarters of the horoscope (houses 10, 11, 12 and 4, 5, 6), feminine planets occupying feminine quarters (houses 7, 8, 9 and 1, 2, 3). The TNK here gives a different system, dividing the horoscope simply into one masculine, eastern hemisphere (houses 10, 11, 12, 1, 2, 3) and one feminine, western (houses 4, 5, 6, 7, 8, 9).<sup>39</sup>

The corresponding list of weaknesses or *duḥ* has ten points, most of which are recognizable in the *durapha* of the TNK (2.71–72), although the order differs in several places:

1. Occupying a cadent house and not aspecting the ascendant. The TNK changes this to occupying the 6<sup>th</sup>, 8<sup>th</sup> or 12<sup>th</sup> house, with the clause about not aspecting the ascendant occurring separately later on.
2. Being retrograde. The TNK has both 'retrograde' (*anṛju*) and 'going retrograde' (*vakragāmin*), presumably referring to a planet's first station.
3. Being under the rays of the sun; cf. number 8 below. The TNK has 'set' (*asta*) in the sense of 'combust'.
4. Being joined to malefic planets by conjunction, square or opposition (identical in the TNK).
5. Being besieged by the malefics, that is, separating from one malefic and applying to another. The TNK has 'conjunct malefics' and 'in *īsarāpha* [separation] from malefics' separately, the latter at the end of the list.
6. Being in its fall. The TNK has 'in a hostile sign or fall'.

<sup>39</sup> But cf. the comments following the section on the 'defects of the moon' below.

7. Being joined to a cadent planet or separating from a planet receiving it. Unsurprisingly, given the distortion of the doctrine of reception or *qabūl* in the TNK, the author has not understood the second condition and gives, separately, ‘in *muthaśīla* (that is, *itthaśāla*) with planets in the signs of malefics or in fall’ and ‘forming *itthaśāla* with planets in the twelfth, sixth or eighth house’.
8. Being without any dignity (that is, peregrine) and overtaken by the sun – in other words, approaching heliacal setting. The TNK has ‘placed in combust degrees, bereft of domicile, exaltation and other dignities’.
9. Being with the head or tail [of the dragon], that is, the two lunar nodes, and having no latitude.<sup>40</sup> The TNK similarly has ‘with the tail or mouth of Rāhu’, an otherwise unusual Sanskrit phrase in a text of this late period.<sup>41</sup>
10. Occupying the sign opposite its own domicile (identical in the TNK).

### 9. Defects of the moon

Sahl’s sixteenth and final item is *aḥwāl al-qamar*, a list of ten conditions weakening the moon. As several of these conditions are identical to those listed under *duḥ*, it is not surprising that the TNK, which includes the defects of the moon under the heading of *durapha*, omits to repeat them. Those conditions which do recur in the TNK (2.73) are listed in a different order. Following Sahl, the defects of the moon are:

1. Being combust, or within 12° of the sun, before and after the conjunction (not in the TNK; but cf. point 6 below).
2. Being in its fall or joined to a fallen planet (not in the TNK).
3. Approaching the opposition of the sun within 12° (not in the TNK; but again, cf. point 6).
4. Being joined to a malefic, aspected by a malefic with a square or opposition aspect, or besieged by malefics (separating from one malefic and applying to another). Not in the TNK.
5. Being within 12° of the head or tail [of the dragon] (not in the TNK).
6. Being in the twelfth sign from its domicile, that is, in Gemini, or at the end of a sign, where the terms of the malefics are.<sup>42</sup> This condition does appear in the TNK as two separate entries, the former being reinterpreted as ‘in the twelfth sign from the sun’ – possibly a conflation of the twelfth *sign* with the twelve *degrees* mentioned in connection with the conjunction and opposition of the sun.
7. Being cadent or joined to a cadent planet. Not in the TNK, which instead has ‘not aspected by the ruler of the sign [occupied by it]’.

<sup>40</sup> Dykes (note 22), p. 44 suggests that Sahl could be referring to the planet’s own nodes rather than those of the moon; but the appellation ‘head/tail’ has more often been reserved for the lunar nodes. Greek astrological authors tend to include the consideration of latitude in judging the effects of conjunctions, and it seems to us likely that Sahl is following this practice.

<sup>41</sup> Rāhu as a single name for the eclipse demon, comprising both head/mouth and tail, was replaced in medieval India with the use of Rāhu for the demon’s head and Ketu for its tail. See Martin Gansten, ‘Navagrahas’, *Brill’s Encyclopedia of Hinduism*, vol. 1 (Leiden, 2009).

<sup>42</sup> Carole Mary Crofts, in her doctoral thesis *Kitāb al-Iktiyārāt ‘alā l-buyūtal-ittinai ‘aṣar*, by Sahl ibn Biṣr al-Isrā’īlī, with its Latin Translation *De Electionibus* (Glasgow University, 1985), argues that this condition is a misunderstanding on Sahl’s part of a doctrine derived from Dorotheus of Sidon and concerning the placement of the moon in a malefic *twelfth part* (δωδεκαμόριον) rather than in the *twelfth sign* from its domicile. See the related discussion in Dykes (note 22), pp. lxii–lxvi.

8. Being in the 'burnt path', that is, from the end of Libra to the beginning of Scorpio (identical in the TNK, although without the technical term). This is a concept unknown in standard Indian astrology.
9. Being 'feral' (*waḥshī*) and void of course. The TNK has: 'not aspected by any, without dignity, known as travelling the empty path'.
10. Being slow in motion or deprived of its light, the latter occurring at the end of the synodic month (from one conjunction with the sun to the next). The TNK simply has 'waning'.

Sahl concludes by saying that no work should be begun under these conditions, 'nor are they to be praised in nativities or in journeys'.<sup>43</sup> This phrase is echoed in the TNK (2.74), although astrological elections (καταρχαί) have been replaced with interrogations: '[configured] thus, the moon is not to be considered auspicious whether at the time of birth or in a question.'

### 10. Other considerations

Following his list of sixteen configurations, Sahl launches into a discussion based on the Greek astrological doctrine of sect, according to which the nocturnal planet Mars is more harmful by day, during the waxing half of the lunar month, and in masculine (odd-numbered) signs of the zodiac, while the diurnal Saturn is more harmful by night, during the waning half, and in feminine (even-numbered) signs.<sup>44</sup> This doctrine too, unknown to classical Indian astrology, is faithfully reported in the corresponding passage of the TNK (2.74–75):

[If] Mars in the waxing, Saturn in the waning fortnight beholds the moon with an evil aspect (*kṣuddrṣṭi*), it is not auspicious. [If] in the waxing [fortnight], by day, occupying a masculine house, Saturn should aspect the moon, [or] Mars [should do so] in the waning [fortnight], by night, occupying an even sign, it works little evil; if conversely, much. [Thus] the wise should consider, whether in a question or a nativity.

Sahl then briefly treats the principles of besiegement, sect or 'own light', the testimonies or dignities of the planets, and finally their fourfold places of joy. Only an extremely terse summary of this last topic has found its way into the related chapter of the TNK, where it forms the very last verse (2.77):

The places of joy [of the planets counted] from the sun<sup>45</sup> are the ninth, third, sixth, ascendant, eleventh, fifth and twelfth houses; their own signs and exaltations; every three signs in order from the rising sign for feminine and

<sup>43</sup> At this point Stegemann ends his text excerpt, although his summary of the contents of the Arabic manuscript shows the latter also to contain the topics related below. We have based our remaining comments on the Latin edition (FAH 850) available with the Warburg Institute, University of London.

<sup>44</sup> Sahl actually ascribes the difference to the notion that Mars is hot while Saturn is cold, probably influenced by Ptolemy's 'scientific' justification for assigning these planets to the night and day, respectively; cf. *Tetrabiblos* I.7.

<sup>45</sup> Namely in the standard Indian order of the days of the week: sun, moon, Mars, Mercury, Jupiter, Venus, Saturn.

masculine [planets, respectively; and] night and day, [respectively], for the same.<sup>46</sup>

The last three of these four modes of joy have been somewhat simplified. It is interesting to note that the author does not recognize, in the zodiacal joys of the planets, the same doctrine which (with one exception) is known in standard Indian astrology as the *mūlatrikona* – literally, ‘root-trigon’.<sup>47</sup> The ‘night and day’ corresponds to Sahl’s distinction between planets appearing in the evening after sunset (vespertine) or in the morning before sunrise (matutine), following their heliacal rising. This is similar to point 7 in the discussion of *quwwa* above; but here Sahl confuses the categories of superior/inferior planets with diurnal/nocturnal. The TNK appears unaware of both these classifications and substitutes masculine/feminine. Finally, the groups of three signs counted from the ascendant correspond to Sahl’s quarters of the sphere (point 11 in the discussion of *quwwa*), which are properly divided into masculine and feminine. With this, the *Kitāb al-’ahkām ‘alā ’n-niṣba al-falakiyya* and the *Ṣoḍaṣayogādhyāya* of the TNK both close.

### 11. Concluding remarks

There can be little doubt that Nīlakaṇṭha’s and Gaṇeśa’s accounts of the sixteen *tājika-yogas* – indeed, the very concept of these configurations – ultimately derive from Sahl’s *Introductorium*. The structure of the texts, their technical vocabulary, and a number of borrowed phrases and examples demonstrate this relation of dependence. Nevertheless, the degree of distortion found in some of the more intricate astrological doctrines suggests that the authors did not have direct access to Sahl’s work as we have it. Given the time difference of more than 700 years, Sahl’s list is likely to have passed through several generations of copyists and, perhaps, translators before it reached the composers of the TNK and TBh. More research is needed to establish the line of transmission and the relations of earlier *tājika* works to that of Sahl.

One example of the results of this transmission can be found in the terminology of the texts themselves. The interpretation of the term *tambūra* is worthy of some consideration from an etymological point of view. When this *yoga* was artificially created through a misunderstanding and erroneous segmentation of *daf at-tadbīr wa-ṭ-ṭabī’a*, it was of course necessary to assign a meaning to this previously nonexistent configuration. The rather aberrant form *tambūra* given as the Sanskritized equivalent of *ṭabī’a* suggests that some form of etymologizing reinterpretation may have taken place (cf. the discussion of *durapha* above). This would only be logical, as the actual Arabic word refers not to a *yoga* at all, but simply to the ‘nature’ of a planet. Thus, it seems that the Persian or Indian predecessors of Nīlakaṇṭha tried to reinvent a prototype word more fitting in the context and then interpreted this word when describing the *yoga*.

<sup>46</sup> The TBh gives a virtually identical definition – although differing, as above, in wording and metre – but before, rather than following, the exposition of the *yogas* (4.1–2).

<sup>47</sup> The exception is the moon, which is said by Sahl and the Greek authors to rejoice in Cancer (its domicile), while its Indian *mūlatrikona* is Taurus (its exaltation). The diurnal planets rejoice in their odd-numbered domiciles, the nocturnal in their even-numbered; the neutral Mercury rejoices in Virgo, which is both its domicile and its exaltation.

In this connection, the etymology suggested by Albrecht Weber, although incorrect in itself, may provide a key to the correct solution. Weber somewhat hesitantly proposes *tambīra* or *tamvīra* to correspond to the Arabic *tamwīr*.<sup>48</sup> Although this word is not, as we have shown, the actual source of the Indian term, Weber may well have hit the nail on the head in a roundabout way: the reconstructed Arabic word *tamwīr* (which fits better phonetically with the Sanskrit *tambīra* than does the actually attested word *ṭabīʿa*) could be interpreted as a derivation from the verbal root *m-w-r*, ‘to move back and forth’, so that it would mean something like ‘moving to and fro, moving back and forth’. This word fits very well with the description given by Nīlakaṇṭha of the spurious *tambīra-yoga*: an applying aspect crossing a sign boundary, the planets involved thereby ‘going back and forth’ across it.

We therefore propose the possibility that the synchronically inexplicable term *ṭabīʿa* (‘nature’) which arose from the faulty segmentation of Sahl’s phrase was re-etymologized into the Arabic *tamwīr*, to which an astrologically relevant meaning was then assigned. It is significant that such a reinterpretation must have been carried out by parties versed in Arabic.<sup>49</sup> Possibly we are dealing here with a Persian ‘middleman’, a point that may also be inferred from some of the forms of the *yoga* names.<sup>50</sup> As has been shown above, a number of these names occur in the Sanskrit texts in forms only partly congruent with the versions given in the Arabic text of Sahl. The differences are slight and do not challenge the genetic identity of the expressions, but we believe that the nature of these differences can tell us something about the transmission of the terms in question. As seen in notes above, the Sanskrit forms often correspond more closely to the forms reconstructed by David Pingree and attributed (somewhat spuriously) to Abū Maʿshar.

Thus, for example, *duphālikuttha* corresponds better to Pingree’s reconstruction *dufāʿ al-quwwa* than to Sahl’s actual *dafʿal-quwwa*. In none of the cases do these differences change the actual meaning of the Arabic, but the forms reconstructed by Pingree suggest that the immediate source of Nīlakaṇṭha’s text is not the exact text of Sahl as handed down to us, but some closely related variant. As Pingree notes, instances of probable Persian influence can be detected in some of the terms, for example in the ending *-kuttha*, which may represent a Persoid pronunciation as *t* of the *tāʾ marbūʿa* at the end of *quwwa*.<sup>51</sup> Here again, we believe that one can find circumstantial evidence of a Persian intermediate version, from which both the TNK and the TBh derived their material. It may well have been at this intermediate stage that the erroneous *tambīra-yoga* was created.

To conclude, the works of Nīlakaṇṭha and Gaṇeśa and their relation to and dependence on the Sahlian tradition show a salient example of the creative doctrinal

<sup>48</sup> Weber (note 7), pp. 274–275. This etymology was also adopted in Sir Monier Monier-Williams, *A Sanskrit-English Dictionary* (Oxford, 1899), p. 438.

<sup>49</sup> These parties were, however, probably not themselves native speakers of Arabic, given the conflation of the letters *tāʾ* and *ṭāʾ*.

<sup>50</sup> It is worth noting that Weber (note 7), pp. 247, 249, reports a statement made by Balabhadra in the 17<sup>th</sup> century to the effect that the original *tājika* work, authored by one Yavanācārya and translated into Sanskrit by Samarasiṃha and others, was written in the Persian language (*pārasī bhāṣā*). Whether Persian and Arabic were two distinct languages to Balabhadra is, of course, an open question.

<sup>51</sup> Pingree (note 1), p. 89. Pingree is somewhat inconsistent in his application of this explanation, as he describes the stand-alone term *kuttha* as an ‘error for *kuwa*’ and not as a Persianized pronunciation, as in the case of *duphālikuttha*.



and cultural transformation that could occur during the transmission of astrological thought. Sometimes, the interpretations of the transmitters seem to have stemmed from creative misreading and misunderstanding, but, as the examples given in this article indicate, such 'errors' could themselves be the catalysts of historically interesting innovations. Sahl, Nīlakaṇṭha and Gaṇeśa – and probably their as yet unknown intermediaries – have thus proved to be individual links in an ever-changing but surprisingly resilient chain of astrological tradition.